

PRIZE ESSAY
ON
ARDENT SPIRITS,
AND
ITS SUBSTITUTES
AS A MEANS OF INVIGORATING HEALTH.


"Deo Juvante—"

By REUBEN D. MUSSEY, M. D.

Professor of Anatomy and Surgery, Dartmouth College, N. Hampshire;
President New Hampshire Medical Society; and Fellow
of the American Academy of Sciences, &c. &c.

WASHINGTON:
PUBLISHED BY DUFF GREEN.
1837

[Copy-right secured according to law.]

 A Premium of Three Hundred Dollars was awarded to Professor MUSSEY, for this Essay, by the following Board of Adjudicators:

JOHN C. WARREN, M. D., Professor of Anatomy and Surgery, Harvard University, Boston.

THOMAS SEWALL, M. D., Professor of Anatomy and Physiology, Columbian College, Washington, D.C.

ROBERTS VAUX, Esq., President of the Pennsylvania State Temperance Society, Philadelphia.

PARKER CLEAVELAND, M. D., Professor of Chemistry and Materia Medica, Bowdoin College, Maine.

VANBRAUGH LIVINGSTON, Westchester county, N. Y.

BENJAMIN SILLIMAN, M. D., Professor of Chemistry, Yale College, New Haven, Conn.

FRANCIS WAYLAND, D. D., President of Brown University, Providence, Rhode Island.

WILLIAM GOODELL, Editor of the "Genius of Temperance," New York City.

Rev. R. W. NILES, Secretary of the Board.

WBD

M989P

1837

5-
A/B

ESSAY, &c.

QUEST. I. WHAT IS THE HISTORY OF THE ORIGIN OF ARDENT SPIRIT, AND OF ITS INTRODUCTION INTO MEDICAL PRACTICE ?

QUEST. II. WHAT ARE ITS EFFECTS UPON THE ANIMAL ECONOMY ?

QUEST. III. IS THERE ANY CONDITION OF THE SYSTEM IN HEALTH OR DISEASE IN WHICH ITS USE IS INDISPENSABLE, AND FOR WHICH THERE IS NOT AN ADEQUATE SUBSTITUTE ?

CHAPTER I.

History.

ARDENT SPIRIT or ALCOHOL is a thin colorless fluid, lighter than water, somewhat volatile, of a pungent smell and taste, readily inflaming by the application of a lighted taper, and burning with a dim blue or purple flame. It is produced only by the decomposition of vegetable and animal substances,* in a state of fermentation. It is the intoxicating principle of all fermented liquors, as wine, cider, beer, &c., and may be separated from them by distillation and other processes.

Physical properties and origin of alcohol.

*The Tartars and Chinese make a kind of wine and ardent spirit from the flesh of sheep.

Fermented liquors derived from the juices of fruits, and from the farinaceous grains, were used in periods of high antiquity. The first authentic record we have of wine, refers to a period scarcely less remote than that of the deluge. Noah planted a vineyard and drank of the fruit of it; and the hypothesis that he was the inventor of wine, receives countenance from the assertion of Hecataeus, the Milesian historian, that the use of wines was first discovered in Ætolia by Orestes the son of Deucalion. This last personage, it is well known, was the hero of the deluge among those heathen nations whose records and traditions recognise that great event.

The early history of alcohol in its uncombined state, or in the form of ardent spirit, is obscure. Had Mahometan fanaticism spared the Alexandrian library, the curiosity of our own times might perhaps have been gratified by a knowledge of the period of its discovery, as well as with the name and residence of the individual whose researches gave to the world a poison, which, in countries where its use has become general, has caused more human suffering than any other invention of man.

There is indeed some probability that China may claim the discovery of the process of distillation. 'In that country,' says Morewood, 'which has preserved its civil polity for so many thousand years, the art of distillation was known far beyond the date of its authentic records.' The same writer, referring to the authority of Du Halde, Martini, Gro-

Wine invented by Noah.

The period at which distilled spirit was invented—obscure.

Distillation discovered in China.

sier and others, says, that there is abundant proof of the Chinese having been well versed in that branch of alchemy which has for its object a *panacea*, or *universal* medicine, long before this fancy engaged the attention of European practitioners.' The search after this elixir of life is said to have originated with the disciples of Lao Chiun, who flourished six hundred years before the Christian era. If this statement be authentic, there can remain scarcely a doubt that the Chinese were acquainted with distilled spirit more than two thousand years ago.

Distilled spirit
it possibly
known by the
Chinese 2000
years ago.

With a knowledge of the process of distillation, and impelled by a motive so strong as the hope of finding an elixir, a single draught of which would confer an immunity from disease, decay, and death, the alchemists could hardly have failed early to subject to this process every kind of beverage which was known to exert an exhilarating influence upon the actions of life. The infatuations of alchemy still existed in China in times comparatively modern, for three of her kings, two in the ninth, and one in the sixteenth century, perished from a draught of the elixir of life, prepared by the alchemists, and taken with a view to attain to immortality.

Three Chi-
nese Kings
killed by the
elixir of life.

To Arabia, however, Europe appears to have been wholly indebted for a knowledge of the art of distillation. It has been suggested, that, as the Arabians at a very early period for commercial purposes penetrated into China, even as far as to Canton, there might have been an interchange

in the scientific discoveries of the two nations.

Distillation probably discovered in Arabia. As the result of their intercourse must probably always remain a matter of conjecture, it is not unreasonable to allow to the Arabians, what has usually been accorded to them, the credit of having found out the process of distillation, whether they were the only inventors or not. A knowledge of chemistry came with the Saracens into Spain, and to this day, several terms purely Arabic, are retained in the nomenclature of European chemistry, as alcohol, alcali, &c.

Geber, whose period and country are questionable, but who is regarded by many as of Saracen origin, and who is generally supposed to have lived in the *seventh* century of the Christian era, is so particular in his descriptions as to show, that in his time not only the art of distillation, but the methods of conducting various pharmaceutical processes were well understood. Distillation was certainly known in Spain as early as the *ninth* century, and there is a high degree of probability that, along with other mechanical arts, it was brought there by the Saracens in the early part of the *eighth* century.

Rhazes, who was a most scientific and distinguished Arabian physician, born about the middle of the *ninth* century, and who resided at the court of Almansor in Seville, gives minute directions for making a particular pharmaceutical preparation in a glass retort. At what precise period the chemists learned the art of extracting alcohol from fermented liquors it is impossible to deter-

mine; but from the fact of their being constantly engaged in the pursuit of the elixir of life, and from other considerations already suggested, there can be but little doubt of its having been known at or before the time of Rhazes. The ardent thirst for discovery, and the guarded secrecy with which chemical processes were at that time conducted, the great facility of disguising alcohol by a multitude of odorous and colored substances, together with the hope that in some shape or combination it would turn out to be the long sought *elixir*, might prevent the mode of its preparation from becoming public for a long period of time, possibly for centuries.

Ardent spirit probably known in the 9th century, possibly earlier.

We are not informed when it was first used as a medicine. Its pungent and exhilarating properties would easily give it a place among restorative remedies, more especially as it might easily be reinforced or modified by the addition of medicinal agents, from the vegetable and mineral kingdoms.

The first spirit we have any account of in Europe was made from the grape, and sold as a medicine in Spain and Italy under the Arabian term alcohol.* The Genoese were the first who prepared it from grain, and are said to have made, in the thirteenth century, a gainful traffic by selling it in small bottles at a high price, under the name of *aqua vitæ*, or *water of life*. Distillation was known in France in 1313, and to this day

Sold as a medicine by the Genoese in the 13th century.

*The original signification of the word 'alcohol,' is a substance which is odorous, and easily evaporates.

the common distilled spirit of that country bears the name of *water of life*. In the 14th century medicated spirits were manufactured and sold in Hungary. A queen of that country is said to have become famous by making a preparation of *aqua vitæ* with rosemary, which was thought to

Sold by a Queen of Hungary in the 14th century. possess extraordinary medicinal virtues. The medicated spirit called gin, which is distilled with juniper-berries, is said to have been first prepared in Holland in the 17th century.* It is still

Gin in the 17th century. in vogue among those who labor under certain local obstructions, occasioned by irregular and intemperate habits.

Thus introduced as a medicine, ardent spirit gradually found its way from one region and kingdom to another, and is now used both as a medicine and a beverage in every civilized country in the world. The only regions where no kind of intoxicating liquor is manufactured, are New-Zealand, New-South Wales, and Van Dieman's Land.†

* Morewood.

† Dr. Thompson.

CHAPTER II.

Effects of Ardent Spirit upon the animal economy.

THE first effect of ardent spirit upon the living fibre is stimulating. This has been observed on its application to the web of the foot of a frog. By the aid of the microscope, it appeared that the blood in the small vessels circulated, for a short time, more rapidly than before. Rubbed upon the human skin, or snuffed into the nostrils in the form of liquid or of vapor, it augments the sensibility and quickens the circulation upon the surfaces with which it is brought in contact. Taken into the stomach in a concentrated state, it instantaneously occasions a burning pain.

When swallowed in a state sufficiently diluted, it throws through the stomach ^{Upon the} a glow or grateful warmth, which in ^{stomach.} many cases is transmitted to the remote organs of the body. The brain and the nerves of the senses partake in the exhilaration. The eye glitters, the hearing is more acute, the colloquial powers are exalted, and the expressions of the countenance are vivid and emphatic, changing in quick succession, in conformity with ^{Brain, nerves,} the rapidly shifting topics of conver- ^{&c.} sation, denoting that the movements of the mind are led by the influence of its more remote and capricious associations.

As the alcoholic excitation increases, the pas-

sions are easily unfolded, as pity, hatred, generosity, revenge, while the reasoning powers and the moral sense are weakened and perverted, and the degradation of these noblest attributes of human nature is manifested by indecent, profane, idiotic, or pugnacious garrulity.

The passions
excited.

Under the still deeper and more protracted influence of this poison, the functions of the senses and the operations of the mind are slower and less coherent; the voluntary muscles at the same time indicating their enfeebled condition, by the falling eye-lid, the open mouth, the driveling lip, and the hanging head; and the exhausted brain and nerves at length leave the whole system to sink into a state of unconsciousness or profound insensibility, which sometimes terminates in death.

The free and habitual use of ardent spirit, is followed by habitual languor in the functions of the organs of the senses, and in fact of every organ of the body. The physiognomy tells what has been done. All the exquisite delineations of benevolence, of delicacy, and of high moral and religious feeling, are effaced from the countenance, as their prototypes are from the mind, and stupidity and selfishness occupy their places. Even strong passion is but faintly portrayed by the half palsied muscles of the face, and sluggishness dwells in that mind which was once impelled by a spirit of activity and enterprize. The powers of digestion, and nutrition having been effectually invaded, the stomach admits less food than before, and the whole system

Effects of
spirits used ha-
bitually.

is but imperfectly supplied with nourishment. Numerous chronic diseases, with melancholy and madness in their train, put in their claim for a residence in the decaying organs of the body; and when acute forms of disease, as thoracic inflammation and pestilential fever make an attack, the work of ruin, thus begun and prosecuted by alcohol, is completed by death.

In deep drunkenness there is *lethargy* and *stupor*, the face is often *pale*, sometimes *flushed*, very rarely *livid* and *swollen*, and still more rarely natural.*

Physiognomy
of drunken-
ness.

The *breathing* is generally *slow*, sometimes *stertorous* or *laborious*, seldom *rapid* or *calm*. The respiratory movements are chiefly or wholly abdominal; the separate acts of inspiration and expiration, particularly the former, occupying but a short time. The puffing of the cheeks as in apoplexy exceedingly rare. The *extremities* are almost invariably *cold*; the *pulse* feeble and slow, and not unfrequently imperceptible; the *pupil* generally dilated, though sometimes contracted.†

* Dr. Ogston's cases.

† *Remedies for a fit of intoxication.*

1. Dislodge the spirit from the stomach by emetics aided by pressure upon the pit of the stomach, or by the use of the stomach pump.

2. Sometimes inject warm water to dilute the glairy mucus, or to distend this organ to the point of action, when not sufficiently distended by its contents.

3. Cold affusion to the head, especially when the head is hot.

4. The vigorous and persevering application of a cow-skin whip, or of small rods to the gluteal eminences. This last is a most effectual remedy in rousing the oppressed energies of the brain and nerves.

In the bodies of persons dead from a fit of drunkenness, the following appearances have been observed, viz. Appearances
after death.

The Brain. Its peripheral or exterior parts, commonly firm; its blood vessels engorged; turbid serum beneath the arachnoid membrane; and turbid or slightly bloody serum, often several ounces, in the ventricles.

The Heart and great vessels filled with fluid blood; the right side of the heart more distended than the left; sometimes bloody serum in the pericardium.

The Lungs. Frothy mucus in the air tubes and cells; lower portion of the lungs charged with fluid blood;—sometimes hepatized.

The Stomach contracted and small; its walls sometimes three or four times their natural thickness and indurated; the folds of its lining membrane sometimes of a deep red color; the whole membrane soft, and easily torn.

The Intestines. Inflammation, thickening and softening of the lining membrane; ulcerations of this membrane in the terminal portion of the small intestine; occasionally preternatural adhesions of them to the other viscera as the duodenum and the pancreas.

The Liver large and firm; its surface frequently uneven, pale, mottled, or orange colored, its interior orange colored, exhibiting fatty degenerations.

The Kidneys paler than natural, large, and flabby; their cut surfaces sometimes bloody.

It should be observed, that of the foregoing marks of disease, some, as the serum under the arachnoid membrane and in the ventricles of the

brain, the fluidity of the blood in the heart and great vessels, and perhaps the deep red upon parts of the lining membrane of the stomach, are to be regarded as the effects of the last or fatal fit of intoxication; while others, as the striking firmness confidently alleged by some anatomists to have been observed in the superficial parts of the brain;—the thickening, induration, contraction, and ulceration of the stomach and intestines—the enlargement, unevenness, hardness, fatty deposits, and orange color of the liver—the unnatural color, size, and flabby texture of the kidneys, must have resulted from the more gradual operation of the habitual use of strong drink.

It is well known, that often in cases of death by lightning, the blood does not co-^{Blood re-}agulate, but remains in the form of a ^{mains fluid.} homogeneous fluid, the principle of life having been suddenly and wholly extinguished by the electrical shock. The same thing is observable when death takes place from the influence of certain poisons, as the woorara, ticunas, and tobacco.

This is also the case when a draught of alcoholic liquor proves fatal. The blood in the heart, the large vessels, and the lungs, is entirely fluid; so effectual is this poison in preventing the last natural act of vitality in the blood, its coagulation.

A difference of opinion has existed among physiologists as to the *manner* in which alcohol acts upon the animal machine ^{Modes by which spirit produces its effects.} in producing its peculiar effects. The sudden exhilaration and glow in distant organs, occasioned by the swallowing of a small quantity of it, result, probably, from the impressions made

By sympathy. upon the nerves of that organ being communicated by *sympathy* to those of distant parts. From experiments practiced by Rayer, it appears that an impression made by alcohol upon a sensitive surface of great extent is speedily fatal. Injected into the peritoneum of a rabbit, it extinguished life in less than a minute; an effect altogether too sudden to admit of explanation by absorption. This view will also explain the sudden recovery which takes place upon the stomach being entirely emptied, in those cases of inebriation which arise from a single and large draught, and in which the symptoms have existed only for a period too short to admit of absorption to any extent.

Mr. Brodie, indeed, from some of his experiments made upon animals, inferred, that this article is not at all absorbed or carried into the circulation. A sufficient number of facts, however,

By absorption. prove its capability of passing into the circulation, and sometimes in large quantities. Mr. Magendie, in an experiment upon a dog, half an hour after tying up the outlet

In the blood. of the stomach and injecting it with alcohol, found a strong odor of this fluid in the blood, and obtained it also from the blood by distillation.

A healthy laboring man in London, about thirty years of age, 'drank at a single draught, a quart of gin for a wager;' within a quarter of an hour he fell down insensible, and died in about three hours from the time of falling. In the Westminster Hospital his body was dissected,

In the brain. and in the ventricles of the brain was

found a considerable quantity of limpid fluid, distinctly impregnated with gin, both to the sense of smell and taste, and even to the test of inflammability. The liquid appeared to the senses of the examining students, as strong as one-third gin to two-thirds water.*

Another case in point is related by Dr. Ogston. He says, 'that on the 23d of August, 1831, he examined, in company with another medical man, the body of a woman æt. 40, who was believed to have drowned herself in a fit of intoxication no one having witnessed the act.' 'We found,' says he, 'nearly four ounces of fluid in the ventricles of the brain, having all the physical qualities of alcohol, as proved by the united testimony of two other medical men who saw the body opened and examined the fluid. The stomach also smelt of this fluid.' 'That spirit exists in the circulation is obvious, from the fact of its being present in many cases in the breath, after its entire removal from the stomach,† as is shown by a careful examination of its contents, discharged by vomiting, or through the aid of the stomach pump.

Does spirit pass into the circulation by the route of lacteal absorption? It has been indubitably established by a great variety of experiments,‡ that numerous articles, some of them slowly, others expeditiously, may be imbibed directly by the walls or coats of the blood vessels, and thus

* Cook on nervous diseases.—Hare on the stomach.

† Ogston.

‡ Made by Magendie, Fodera, Dutrarchet, Coates, Lawrence, and others.

pass into the blood. In one experiment, less than three minutes were occupied in the passage of a strong watery solution of nux vomica through the coats of the jugular vein of a dog. In the other experiment with the dog, already referred to, in which M. Magendie found spirit in the blood, there was none detected in the chyle.

Spirit, then, *may* sometimes enter the circulation by direct imbibition through the coats of the blood vessels; and when it has arrived at the blood, it unites with its watery part, for which it has a strong affinity, and circulates along with it through every organ, deranging, oppressing, or extinguishing the actions of life. In the brain, when a portion of the watery part of the blood is thrown into the ventricles to relieve the gorged vessels, alcohol is deposited with it; and from its strong affinity for water, it is probable that a proportion of it is deposited along with the thin fluids secreted by the large glands, as the mammary glands, and kidneys; and there can be no doubt of its being exhaled in large quantities from those surfaces, as the skin and bronchial membrane, from which there is a free transpiration of aqueous matter, whether in a liquid or æriform state.

The inhalation, only, of the vapor of distilled spirit or of wine, may be carried so far as to produce deep intoxication. Received in this manner, it is probably imbibed by the blood in the fine vessels distributed upon the walls of the air cells of the lungs, and then conducted by the route of the circulation to the brain and other distant organs.

Inhaling the vapor of spirit or of wine may cause drunkenness.

In so far as we are acquainted with the powers of the stomach, we have no evidence that it is capable of digesting or decomposing alcohol. Dr. Beaumont, in his experiments with St. Martin, observed that neither alcohol nor fermented liquors, nor other *fluids*, not holding aliment in solution, are changed by the gastric juice, but very soon after being received, pass out of the stomach either through the pylorus or by absorption. And from the fact of an alcoholic exhalation from the lungs existing for several hours after the drinking of any kind of intoxicating liquor, as appears from the odor of the breath, it is to be inferred that no healthy animal process whatever can accomplish its dissolution. The stomach and its auxiliary organs act upon the thousands of nutrient articles, decomposing them, changing their nature, and preparing them to become a component part of the organs themselves; but the versatile and wonder working agencies of animal chemistry seem powerless when brought to operate upon this uncongenial and refractory material. In the stomach it is alcohol, in the lungs it is alcohol, in brain it is alcohol: and as the organs are unable to break down its elements and render it nutritive or harmless, they throw it out at every emunctory and pore; not, however, until it has left upon the vital tissues and movements the impress of mischief, which being reiterated from day to day and year to year, brings premature decay, disease, and dissolution.

CHAPTER III.

Is there any condition of the system in health or disease, in which its use is indispensable, and for which there is not an adequate substitute?

OF the effects of alcohol as a beverage in health, there ought to be but one opinion. Alcohol as a beverage. The whole history of spirit drinking, whether simple, or combined with the different ingredients existing in fermented or brewed liquors, affords abundant proof of its being uncongenial with the most natural and healthy actions of the bodily organs. How wide from the truth is the notion that spirit aids the stomach in the process of digestion.

Dr. Beddoes observed that, animals to whom he had given spirits along with their food, had digested nearly one half less than other like animals to whom none had been given. Impairs digestion. Under the habitual use of spirit, the daily dose may give a temporary alleviation to the irritated nerves of the stomach already enfeebled, but instead of conferring tone or vigor to that organ, it only serves to perpetuate its disease or debility.

In the case of St. Martin, the young man before mentioned, into whose stomach through the side, a large opening was left after the healing of a severe wound, Dr. Beaumont frequently observed diseased appearances;—as,

red or purple spots upon the lining membrane of the stomach, from some of which exuded small drops of grumous blood ;—aphthous or Changes in the the stomach. cankerous patches upon the same membrane; ‘the gastric fluids mixed with a large proportion of ropy mucus, and muco-purulent matter slightly tinged with blood, resembling the discharge from the bowels in some cases of dysentery.’ It is worthy of remark that these beginnings of disease were not always accompanied with external signs or symptoms of disorder. When of considerable standing, however, these appearances were occasionally observed to be attended with Sympathetic effects. ‘an uneasy sensation and tenderness at the pit of the stomach, and some dizziness and dimness and yellowness of vision on stooping down and rising again,’ also, with a brown coat upon the tongue, and a slight sallowness of the countenance.

‘Improper indulgence in eating and drinking,’ says Dr. Beaumont, ‘has been the most common precursor of these diseased conditions of the coats of the stomach. Spirit of wine produces these changes, The free use of ardent spirits, wine, beer, or any intoxicating liquor, when continued for some days, has invariably produced these morbid changes.’

In evidence of the directly poisonous influence of alcoholic drinks upon the constitution, is the fact, that men long accustomed to their daily use may be taken off suddenly and entirely from them, not only without impairing the health, but with a certainty of improving it. Men may quit spirits suddenly. In the summer of 1829, Mr. Powers,

agent and keeper of the Penitentiary at Auburn, N. Y. declared, that during several years' residence in that institution, he had never known an individual whose health had not been benefited by the total abstraction of spirit and every other stimulant drink and narcotic from his diet. This testimony is very important, inasmuch as a large proportion of the whole number of convicts when admitted to that establishment are drinkers of alcoholic liquors, from tippling to beastly drunkenness. 'These drinkers,' said Mr. P. are generally very uneasy and nervous, and sometimes greatly distressed for ten or fifteen days after being put upon water as their exclusive beverage; but after that period they have a good appetite, increase in flesh, and become healthy.' A considerable number are annually received and discharged; the average number remaining in the penitentiary, was *six hundred*. I have never seen so large a congregation of men so healthy looking as these convicts, when they came into the chapel on Sabbath morning to hear a sermon from their chaplain. Some of these men were sixty years old when admitted, and were confirmed drunkards. The evidence furnished by all our state prisons, where similar discipline is practised, is of the same character.

A wealthy farmer in Sullivan county, New Hampshire, had been in the habit of drinking spirit for a number of years, and during the haying season he often used it freely. With more than ordinary activity of mind and a vigorous bodily constitution, he attained the age of *seven-*

ty-five years; much broken down and decayed however, under occasional attacks of gout, which he called rheumatism. At this period he broke off suddenly and wholly from the use of spirit; and within two years, that is, at the age of *seventy-seven*, he was so much recruited as to appear several years younger, and he assured me that in the last two haying seasons he had accomplished more personal labor than in any other two haying seasons for the last ten or twelve years. He expressed himself in the most decisive and energetic manner when remarking upon the effects, in his own case, of total abstinence from spirituous drinks; he had not only not been injured, but had been an unspeakable gainer by the change. This case, and others like it, show the futility of the opinion that it is unsafe for persons of any age suddenly to break the habit of spirit drinking, and that those advanced in life should either not attempt to discontinue it, or should do it in the most cautious and gradual manner. The truth is, that the effects, whether immediate or remote, of alcohol, whenever they are so distinct as to be estimated, are always those of an unnatural, unhealthy, or poisonous agent; and soon after the daily poison is withdrawn, the vital powers, relieved from their oppression, rally, the organs act with more freedom and regularity, and the whole machinery of life exhibits something like a renovation.

Spirit has been erroneously supposed to afford a protective influence against the effects of severe cold. A sea captain of Boston, Massachusetts, informed me that in a memorable cold Friday in the

Spirit as a
protection a-
gainst cold.

year 1816, he was on a homeward passage off our coast not far from the latitude of Boston. Much ice made upon the ship, and every person on board was more or less frozen, excepting two individuals, and they were the only two who drank no spirit.

‘In 1619, the crew of a Danish ship of *sixty* men, well supplied with provisions and ardent spirit, attempted to pass the winter in Hudson’s bay; but *fifty-eight* of them died before spring. An English crew of *twenty-two* men, however, destitute of ardent spirit and obliged to be almost constantly exposed to the cold, wintered in the same bay, and only two of them died. Eight Englishmen did the same in like circumstances, and all returned to England. And four Russians, left without spirit or provisions in Spitzburgen, lived there six years and afterwards returned home.’ Facts of this nature might be multiplied to any extent.

So far, also, from guarding the animal fabric
Against heat. against the depressing and irritating effects of heat, spirit tends to produce inflammatory diseases. A distinguished medical officer, Marshall, who was subjected to great exertion and exposure in a tropical climate, observes, ‘I have always found that the strongest liquors were the most enervating; and this in whatever quantity they were consumed: for the daily use of spirits is an evil which retains its pernicious character through all its gradations; indulged in at all, it can produce nothing better than a diluted or mitigated kind of mischief.’

Those ships' crews who now visit hot and sickly climates without spirit, have an average of sickness and mortality strikingly less than those who continue the use of it as formerly. 'The Brig Globe, Captain Moore,' says the anniversary Report of the Pennsylvania Temperance Society for 1831, 'has lately returned from a voyage to the Pacific Ocean. She had on board a crew of ten persons, and was absent nearly eighteen months. She was, during the voyage, in almost all the climates of the world; had not one person sick on board, and brought the crew all back orderly and obedient. All these advantages Captain Moore attributes, in a great measure, to the absence of spirituous liquors. There was not one drop used in all that time; indeed there was none on board the vessel.'

To a place among preventives of disease, spirituous drinks can present but the most feeble claims. If, under occasional drinking during the period of alcoholic excitement, a temporary resistance may be given to those morbid influences which bring acute disease, be it occasional or epidemic, that excitement, by the immutable laws of vital action, is necessarily followed by a state of relaxation, depression, or collapse, in which the power of resistance is weakened, and this too in proportion to the previous excitement. In order therefore to obtain from alcoholic stimulus any thing like a protective influence against the exciting causes of disease, the exposure to these causes must be periodical, precisely corresponding with the stage of artificial excitation. If, however, such accuracy of adjust-

Spirit as a preventive of disease.

ment between the powers of vital resistance artificially excited, and the unhealthy agencies which tend to produce disease be wholly impracticable, then the danger must be increased by resorting under any circumstances to spirit as a preservative; and if not, other articles would do as well.

The best protection against disease is derived from a natural, healthy, unfluctuating state of vital action, sustained by plain articles of nutriment taken at regular intervals, uninfluenced by any innutritious stimulus which operates upon the whole nervous power. The habitual drinking of ardent spirit creates a multitude of chronic or subacute organic irritations and derangements, upon which acute disease is most easily, nay, often necessarily ingrafted; hence tipplers and drunkards, exposed to the exciting causes of inflammatory, epidemic, and contagious diseases, are liable to an attack, and when attacked, having the vital powers unnecessarily wasted, they die in larger numbers. These results are witnessed in epidemic pleurisies, lung fevers, the severe forms of influenza, pestilential fevers, and cholera.

Most appalling evidence is afforded by the history of this last disease of the pernicious influence of intoxicating liquors in preparing the human constitution for its attack. In India, Ramohun Fingee, a native physician, declares that

In India. ‘people who do not take spirits or opium do not catch the disorder, even when they are with those who have it.’ In the army under the command of the Marquis of Hastings in India, consisting of *eighteen thousand* men, more than half of the men died in the first *twelve days*; the

free use of intoxicating liquors in a hot climate will assist in explaining this extraordinary mortality.

In China, according to Dr. Reiche, 'the disease selected its victims from among such of the people as live in filth and intemperance.' China.

Mr. Huber, who saw 2160 perish in twenty-five days in one town in Russia, says, 'It is a most remarkable circumstance, that Russia. persons given to drinking have been swept away like flies. In Tiflis, containing 20,000 inhabitants, *every drunkard has fallen! all are dead—not one remains.*'

A physician of Warsaw says, 'that the disease spared all those who led regular lives, and resided in healthy situations; whereas they whose constitutions had been broken down by ex- Poland. cess and dissipation, were invariably attacked. Out of one hundred individuals destroyed by cholera, it was proved that ninety had been addicted to the free use of ardent spirits.'

In Paris, of the 30,000 persons destroyed by cholera, it is said that a great propor- France. tion were intemperate or profligate.

It has been computed that 'five-sixths of all who have fallen by this disease in England. England, were taken from the ranks of the intemperate and dissolute.'

Dr. Rhinelander, who visited Montreal during the prevalence of cholera there in the Montreal. summer of 1832, says, 'that the victims of the disease are the *intemperate*—it invariably cuts them off.' In that city, after there had been *twelve hundred* cases of the malady, a Montreal journal

states, that 'not a drunkard who has been attacked has recovered, and almost all the victims have been at least moderate drinkers.'

Dr. Sewall of Washington city, while on a visit to the cholera hospitals in the city of New York, the same season, writes to a friend, that 'of 204 cases of cholera in the Park Hospital, there were

New York. only six temperate persons, and that those had recovered, while 122 of the others, when he wrote, had died;' and that the facts were 'similar in all the other hospitals.'

In Albany, the same season, cholera prevailed for several weeks, attended with a severe mortality; and it is a remarkable fact, that during its

Albany. whole period it is not known that more than two individuals, out of the five thousand members of Temperance Societies in that city, became its victims.

WATER is the natural and proper drink of man. Indeed it is the grand beverage of organized nature. It enters largely into the composition of the blood, and juices of animals and plants, forms an important ingredient in their organized structures, and bears a fixed and unalterable relation to their whole vital economy. It was the only beverage of the human family in their primeval state.

In that garden, where grew 'every tree pleasant to the sight and good for food,' producing all the richness and variety of 'fruit and flower' which an omnipotent and all-bountiful Creator could adapt to the relish of his senses, and the exigencies of his entire organization, it cannot for a moment be doubted that man was in a condition the best

suited to secure to him the uninterrupted, as well as the highest and best exercise and enjoyment, of his physical, mental, and moral powers. His drink was water. A river flowed from Paradise. From the moment that river began to 'water the garden,' till the present, no human invention has equalled this simple beverage; and all the attempts to improve it by the admixture of other substances, whether alcoholic, narcotic, or aromatic, have not only failed, but have served to deteriorate or poison it, and render it less healthful and safe.

Water is as well adapted to man's natural appetite, as to the physical wants of his organs. A natural thirst, and the pleasure derived from its gratification, were given us to secure to the vital machinery the supply of liquid necessary to its healthy movements. When this natural thirst occurs, no drink tastes so good, and in truth none is so good as water; none possesses adaptations so exact to the vital necessities of the organs. So long as a fresh supply of liquid is not needed, so long there is not the least relish for water; it offers no temptation, while its addition to the circulating fluids would be useless, or hurtful.

Water adapted
to man's appe-
tite.

This topic has been most ably discussed by Dr. Oliver, as follows:—'The waste of the fluid parts of our bodies requires the use of drink Dr. Oliver. to repair it, and we derive a sensible gratification from quenching our thirst. What use do we make of this fact? Why, to try if we cannot find something that we shall take pleasure in drinking, whether we are thirsty or not; and in this search mankind have been remarkably successful. To

such a degree indeed have we succeeded in varying and increasing a pleasure which was designed by nature merely as an incentive to quench our thirst, that to quench thirst is become one of the last things that people drink for. It is seldom indeed that people in health have any natural thirst, except perhaps after exercise, or labor in a hot day. Under all other circumstances, we anticipate the sensation by drinking before it comes on, so as but seldom to enjoy the natural and healthful gratification of drinking because we are thirsty. Who has not observed the extreme satisfaction which children derive from quenching their thirst with pure water, and who that has perverted his appetite for drink, by stimulating his palate with bitter beer, sour cider, rum and water, and other brewages of human invention, but would be a gainer even on the score of mere animal gratification, without any reference to health, if he could bring back his vitiated taste to the simple relish of nature. Children drink because they are dry. Grown people drink, whether dry or not, because they have discovered a way of making drinking pleasant. Children drink water because this is a beverage of Nature's own brewing, which she has made for the purpose of quenching a natural thirst. Grown people drink any thing but water, because this fluid is intended to quench only a natural thirst, and natural thirst is a thing which they seldom feel.

‘One of the evils, though not the only or the greatest one, of perverting the natural appetite of thirst, is, that it leaves us without a guide to direct us when we need drink, and when we do

not. There is no danger, it is true, that this want will mislead us into drinking too little; the danger is, that we shall be betrayed into drinking too much, *i. e.* when nature does not require it; and such no doubt is frequently the case. If a man is fond of some particular drink (and most people I believe have their favorite liquor,) he will be tempted to take it when he does not really need it. This consideration points out the wisdom of nature in providing for us a beverage which has nothing to tempt us to drink, except when we are really thirsty. At all other times, water is either perfectly indifferent, or it is disagreeable to us; but when we labor under thirst, *i. e.*, when nature requires drink, nothing is so delicious to a pure, unadulterated taste. While we adhere to this simple beverage we shall be sure to have an unerring prompter to remind us when we really require drink; and we shall be in no danger of being tempted to drink when nature requires it not. But the moment we depart from pure water, we lose this inestimable guide, and are left, not to the real instincts of nature, but to an artificial taste in deciding on actions intimately connected with health and long life. What is more common than for a man to take a glass of beer, or cider, or wine, or rum and water, not because he is thirsty, and really needs drink, but because opportunity makes it convenient, and he thinks it will taste well. And this is true, not only of fermented or distilled liquors which are directly injurious in other modes, but in a less degree of any addition made to pure water to make it more palatable. Let me not be misunderstood. I am far from insinuating

that lemonade, soda water, and milk and water, are hurtful drinks. Far from it. But I say, that in using even these mild and healthful beverages we lose one important advantage we should derive from the use of pure water alone. If they are more palatable to us than water (and otherwise we should have no motive to use them,) we shall be tempted to take them oftener, and in greater quantities than is required by nature, and may thus unconsciously do ourselves an injury. It is rare for a person to drink a glass of water when he is not thirsty, merely for the pleasure of drinking; and as thirst is the natural guide, if he drinks when not thirsty, he takes more fluid than nature points out as proper; and so far violates one of her obvious laws. But it may be asked if any injury can result from drinking more than nature absolutely requires. Not perhaps in particular instances, but the habit of drinking more may undoubtedly be injurious. It is a sufficient answer to all these questions to say that our Creator knows best. Under the guidance of the instincts he has implanted in us we are safe. But as soon as we leave these, and place ourselves under the direction of our own educated appetites, we are constantly liable to be led into danger. It is certainly hurtful to drink habitually more than was intended by nature, because it imposes upon the constitution the task of removing the excess; or else it is retained in the system, and there may lead to dropsy, or some other of the consequences of plethora, or redundancy of fluids in the system.'

Dr. Cullen, formerly a distinguished professor

of Medicine at Edinburgh, after speaking of the general use of water, both by man and the brute creation, remarks,—‘Simple water is, without any addition, the proper drink of mankind.’

Dr. Gregory, the successor of Cullen, in his *Conspectus Medicinæ Theoreticæ*, Dr. Gregory. says, that ‘pure spring water, when fresh and cold, is the most wholesome drink, and the most grateful to those who are thirsty, whether they be sick or well; it quenches thirst, cools the body, dilutes, and thereby obtunds acrimony—often promotes sweat, expels noxious matters, resists putrefaction, aids digestion, and, in fine, strengthens the stomach.’

Dr. James Johnson, an eminent physician now residing in London, remarks upon Dr. J. Johnson. water as follows: ‘There can be no question that water is the best and the only drink which nature has designed for man; and there is as little doubt but that every person might, gradually, or even pretty quickly, accustom himself to this aqueous beverage. The water drinker glides tranquilly through life without much exhilaration, or depression, and escapes many diseases to which he would otherwise be subject. The wine drinker experiences short but vivid periods of rapture, and long intervals of gloom; he is also more subject to disease. The balance of enjoyment then, turns decidedly in favor of the water drinker, leaving out his temporal prosperity and future anticipations; and the nearer we keep to his regimen, the happier we shall be.’

How congenial is this fluid to the human organization, adapted as it is to its necessities under

every variety of constitution, and vicissitude of climate, from the equator to the arctic circles. Dr. Mitchel, in reference to facts already quoted, and others like them, respecting ships' crews wintering in icy regions, says, 'that in all the frequent attempts to sustain the intense cold of winter in

Dr. Mitchel. the arctic regions, particularly in Hudson's Bay, Greenland, and Spitzbergen, those crews or companies which had been well supplied with provisions and liquors, and enabled thereby to indulge in indolence and free drinking, have generally perished; while at the same time the greatest number of survivors have been uniformly found among those who were accidentally thrown upon the inhospitable shores, destitute of food and spirituous liquors, compelled to maintain an incessant struggle against the rigors of the climate in procuring food, and obliged to use water alone as drink.'

In hot climates, too, water is the only safe drink.

Dr. Mosely. Dr. Mosely, on tropical diseases, uses the following language: 'I aver, from my own knowledge and custom, as well as from the custom and observations of others, that those who drink nothing but water, or make it their principal drink, are but little affected by the climate, and can undergo the greatest fatigue without inconvenience.'

The Arabs of the desert are among the most
Arabs. hardy of the human race, enduring the greatest fatigue and exposure under a burning sun, and their habitual drink is water.

The effects of water drinking in a burning climate are well marked in the following account

given by Mr., afterwards Sir James M'Gregor, of the march in Egypt of a division of the British army sent from Hindostan to aid the main army in opposing the French under Napoleon. 'After crossing the Great Desert in July 1801, from a difficulty in procuring carriage, no ardent spirit was issued to the troops in upper Egypt. At this time there was much duty of fatigue, which, for want of followers, was done by the soldiers themselves; the other duties were severe upon them; they were frequently exercised, and were much in the sun; the heat was excessive: in the soldiers' tents in the middle of the day the mercury in the thermometer of Fahrenheit stood at from 114 degrees to 118 degrees, but at no time was the Indian army so healthy.'

Sir J. M'Gregor in Egypt.

Dr. Johnson, from whom an opinion on the superiority of water to wine as a beverage has already been given, remarks, in his *Tropical Hygiene*, that 'it might appear very reasonable that in a climate where ennui reigns triumphant, and an unaccountable languor pervades both mind and body, we should cheer our drooping spirits with the mirth-stirring bowl; a precept which Hafiz has repeatedly enjoined. But Hafiz, though an excellent poet, and, like his predecessor, Homer, a votary of Bacchus, was not much of a physician; and without doubt his '*liquid ruby*,' as he calls it, is one of the worst of all prescriptions for a 'pensive heart.' I remember a gentleman at Prince of Wales' Island, (Mr. S.) some years ago, who was remarkable for his convivial talents, and flow of spirits. The first time I happened to be in a large company

Remarks and case by Dr. Johnson.

with him, I attributed his animation and hilarity to the wine, and expected to see them flag, as is usual, when the first effects of the bottle were past off; but I was surprised to find them maintain a uniform level, after many younger heroes had bowed to the rosy god. I now contrived to get near him and enter into a conversation, when he disclosed the secret, by assuring me he had drunk nothing but water for many years in India: that in consequence his health was excellent—his spirits free—his mental faculties unclouded, although far advanced on time's list; in short, that he could conscientiously recommend the 'antediluvian' beverage, as he termed it, to every one that sojourned in a tropical climate.*

Facts and opinions, corresponding with the foregoing, from physicians and others, might be cited to a much greater extent, but it is deemed unnecessary. Not only at the present day, but in times gone by, and even far back up to the remote periods of regular medicine, eminent physicians have commended water as the best, or as

Eminent physicians in different ages commend water as a drink.

* Hon. J. S. Buckingham, Esq., member of Parliament, says, that 'the finest and strongest men he ever saw in his life, were a tribe residing upon the Himalaya mountains. They came to Calcutta as Athletæ, to show their skill in wrestling, boxing, throwing the quoit, and other athletic exercises; they were pitted against British grenadiers and sailors, the strongest that could be found; the result was that one of them was a match for any three, and yet these men never tasted any drink stronger than milk or water, from their infancy upwards. He had himself traveled from Diarbekir to Bagdad, a distance of eight hundred miles, on horseback in ten days, with the thermometer ranging from 100 at sunrise, to 125 or 130 degrees in the

the only proper and healthful beverage for man. Among them may be mentioned Parr, Cheyne, Arbuthnot, Sydenham, Haller, Stahl, Van Swieten, Boërhaave, Hoffmann, and even Celsus, Galen, and Hippocrates. These were like so many meteors shooting here and there amid the darkness which for ages hung over men's minds; but upon this darkness a broad light has at length broken, which, it is believed, is a sure presage of 'perfect day.' The experiment has been made on a large scale, and many thousands of witnesses in our country may now be referred to for an opinion furnished by their own personal experience, on the effects of water as the habitual and only drink. Multitudes of farmers, mechanics, manufacturers, sea-faring, and professional men, give their voice in its favor.*

afternoon, without drinking any thing but water, and he was as fresh and as strong at the end of his journey as when he set out.'

* 'More than 1000 American vessels are now afloat on the ocean in which ardent spirit is not used.'—*Annual Report of the American Temperance Society*. May, 1834.

Of 186 whaling vessels belonging to New Bedford, Massachusetts, 168 furnish no spirits for their crews; and the uniform opinion of the owners and captains of these, as well as of merchant vessels in different ports, as furnished to the executive committee of the New York State Temperance Society is, that the use of intoxicating drinks for sea-faring men in any climate, and under any circumstances, are not necessary, but injurious; and they assert that observation and experience prove that sailors are more healthy, more orderly, and perform their duty altogether better without these liquors. *Vide* 'Testimony of American merchants and sea captains.'—*American Quarterly Temperance Magazine for August, 1834*.

So fully impressed are commercial men with the belief

As a vehicle for medicinal agents, alcohol has held a distinguished place. An extensive list of *tinctures*, or spirituous infusions of vegetable articles, and of alcoholic solutions of mineral substances, is still found in our dispensatories. In a highly scientific work of this kind, lately published in this country, there are given the methods of preparing about one hundred and fifty tinctures!

Alcohol as a vehicle for medicines. The tonic barks, and roots, and woods, impart more or less their medicinal properties to distilled spirit; and thus imparted, these properties are preserved for a considerable length of time. Of these preparations, however, it may be observed, that the spirit often

that disasters at sea are very often connected with the use of intoxicating drinks, that an insurance company in Boston, and more recently all the marine insurance companies in New York, in all amounting to ten, have engaged to return five per cent. on the premium of every vessel navigated without spirit.

‘At a meeting of the board of underwriters, held at the office of the American Insurance Company, in the city of New York, on the second of October, 1834, it was *Resolved*, That the different marine insurance companies in the city of New York will allow a deduction of five per cent. on the net premiums which may be taken after this date on all vessels, and on vessels together with their outfits, if on whaling and sealing voyages, terminating without loss, provided the master and mate make affidavit, after the termination of the risk, that no ardent spirits had been drunk on board the vessel by the officers and crew during the voyage or term for which the vessel or outfits were insured.

WILLIAM NEILSON, President.

Walter R. Jones, Secretary of the Board.’

Vide American Quarterly Temperance Magazine for November, 1834.

so modifies the impression made upon the stomach, brain, or blood vessels, as to prevent their being given in doses sufficient for the objects intended. This is the case in certain forms of gastric and intestinal irritation, accompanied with an unnatural irritability, not only of the ganglionic nerves, but of those belonging to the cerebro-spinal system. Cases not unfrequently occur where the decoction or *watery* infusion of the Peruvian bark is altogether preferable to the tincture; and perhaps there is never a case in which some preparation of quinia, as the sulphate for example, is not decidedly better for the patient than any alcoholic infusion of the bark.

The spirituous preparations of opium are in many, if not in all cases, inferior to the black drop. The stomach has been known, in a state of great irritability after excessive vomiting, to retain the black drop, or one of the salts of morphia, when the tincture of opium was perseveringly rejected.

In those cases of excessive irritability of the stomach, accompanied with spasms of its muscular coat, and also that of the intestines, in which external anodyne applications are indicated, the warm black drop upon the abdomen, or the (dry) acetate of morphia applied to a blistered surface, is altogether more efficient than the tincture of opium. I have repeatedly witnessed a much happier effect from the simple acetous solution of opium locally applied, than from the spirituous solutions, in relieving the agonizing pain of phlegmasia dolens.

The medicinal qualities of the tonic and nar-

Chemical preparations of vegetable medicines preferable to the spirituous.

cotic vegetables may be preserved without decay in the form of the elegant preparations, which owe their existence to the perfection in chemical processes invented in our own times; and these preparations may be employed without alcoholic or any other admixtures which would serve to modify or impair their effects. The *materia medica* then would sustain no loss if alcohol were wholly given up as a vehicle for these classes of medicines. The same is true of its combination with the active principle of the Spanish fly. This article yields to water and to vinegar its active properties. A strong vinegar of flies is a better vesicant than the alcoholic infusion; and the chemical extract named cantharidin unites readily with oil as a vehicle, and in this form may be most conveniently employed for the purpose of making a blister.

The essential oils, the balsams, and the resins, may unite with, or become diffused in water by the aid of sugar and gum arabic, or by the admixture of ammonia, where this can be done without too far modifying their medicinal effects.

Emulsions. These mixtures, called *emulsions*, admit of the medicinal article being taken at any requisite degree of dilution. They are greatly to be preferred to the alcoholic solutions, inasmuch as these last are precipitated in the form of a white or brown cloud, or in a mass of small globules the moment they are thrown into water, and are thus less equably diffused in the water than when combined with it through the medium

of sugar, or some other suitable arti- Camphor.
cle. Camphor may be very effectually commi-
nuted and diffused in water by rubbing it with
calcined magnesia, and adding water slowly.*
This is a more uniform mixture, and more con-
venient for internal exhibition, than can be made
by mixing the spirituous solution with water.

The emulsions then of these articles, as medi-
cines to be taken into the stomach, are decidedly
preferable to the alcoholic solutions, or tinctures
as they are called. If an attempt be made to
swallow these tinctures without diluting them,
they are not only found too pungent, or acrid, but
they are at once precipitated by the fluids of the
mouth and throat; and when the tincture of guai-
acum or of tolu is taken, the resinous matter is
at once spread out upon the surface of the tongue
and mouth in the form of an adhesive coating or
varnish, which is dislodged with difficulty.

As a remedy itself, in various forms of disease
alcoholic stimulus has long been re- Alcohol as a
medicine.
garded with high consideration. In
the slight departures from the equable healthy
living actions of the body, marked by exhaustion
from fatigue, loss of blood, hunger, thirst, and
exposure to great heat or cold, which approach the
state of syncope or fainting, some In slight de-
partures from
healthy action.
kind of intoxicating liquor is gene-
rally resorted to as if it were the only remedy;
but in some of these states this kind of stimulus
is not quite safe, and in none of them is it abso-
lutely necessary.

* 'Camphor is soluble in strong acetic acid.'—*Turner's Chemistry.*

A draught of bland liquid, as simple water, or sweetened water, or milk and water, or cocoa, or various sub- some other simple nutritious substance, as some liquid farinaceous preparation, or the pulpy or juicy part of fruits; or the tea of some aromatic herb; or a drop or two of one of the essential oils, as those of the mint tribe, diffused in water by the aid of sugar, or a small dose of carbonate of ammonia; or simple ammonia well diluted with water—taken, one or more of them at a temperature suited to the state of the stomach and of the circulation, and repeated at proper intervals, will accomplish every good purpose of alcoholic stimulants, and in most cases with less exposure of some of the functions to undue or dangerous excitation. In the prostration, for example, occasioned by long exposure to cold, the introduction of a stimulus so exciting and ungenial as distilled spirit into the stomach, makes an impression upon its nerves too strong and unnatural, and a transition from a state of languor and exhaustion to that of activity, too sudden to comport with an economical expenditure of the vital power, tending to create a predisposition to some form of disease, if not speedily to excite it.*

In a fainting fit. In a complete *syncope*, or fainting fit, cold water dashed upon the head

* Captain Harding gives his own experience as follows: 'In answer to your eighth question I say, that when I was in the habit of using ardent spirits when wet and fatigued at sea, on going below to refresh and shift myself, I thought a *little toddy* was absolutely necessary to prevent taking cold; but now that I am more than fifty years old, I can get wet, cold, and fatigued, go below and put on dry clothes, and, if thirsty, take a drink of water, and

and face; ammonia, or some essential oil, or both, passed into the nostrils, or into the mouth and throat, will do more than any preparation of alcohol, towards a speedy and effectual resuscitation.

Ammonia and the essential oils exert an agency different in kind from that made by alcohol. If in a sense they are *diffusible*, their impressions bring readily transmitted from one part to another, they are not intoxicating. They seem to stimulate the brain only indirectly, perhaps through the medium of a slightly increased action of the bloodvessels, causing like muscular exertion a brisker motion of the blood in the brain; but they do not make the same apparently direct, unnatural, poisonous, bewildering, and exhausting impression upon the whole power of the brain and nerves as that which is derived from alcoholic stimulus.

In *dyspepsia* the alcoholic treatment is now fortunately almost universally abandoned. *Dyspepsia.* Experience has at length taught physicians that the irritations, chronic or subacute, of the lining membrane of the alimentary canal, the capricious excitements of the nervous system, and the slight but obstinate deviations from the healthy standard in the circulation, may be more easily and permanently controlled, under the influence of a plain diet, suitable clothing, bathing, frictions, ex-

feel no inconvenience whatever; so that in this case I answer from actual experience.

SAMUEL HARDING, master, ship *Romulus*,
of Brunswick, Me.'

Vide Letter to Mr. Delavan, American Quarterly Temperance Magazine for August, 1834.

ercise in the open air, proper hours for sleep, and a light and agreeable occupation of the mind, than under the use of any kind of intoxicating drink, in any manner administered.

Scrofula. In *strumous* constitutions, and under the local developments of *scrofula*, ardent spirit was formerly employed. But who, at this day, would think of placing it in competition with the preparations of iodine, employed at the hospital of St. Louis in Paris, and in other places, joined with proper diet, bathing, frictions, exercise, air, &c.?

In the whole range of *nervous diseases* alcohol, in any shape, is entitled to but very limited confidence. It seems to be incapable of doing any thing better than to cause a transient alleviation, while its ultimate effects are pernicious; with the exception perhaps of that state of the brain and nerves exemplified in *traumatic tetanus*, which requires a narcotic influence. For this purpose the combinations of morphia, either internally given, or externally applied, especially to a blistered surface, are to be preferred. A tonic or sustaining power in the treatment of this disorder may better be derived from the judicious use, in addition to the morphia, of some vegetable tonic, as the sulphate of quinia, joined perhaps with carbonate of ammonia, than from spirituous drinks.

In *inflammations*, whether deep-seated or superficial, the vascular and nervous irritations are usually observed to be increased by the use of alcoholic liquors, sometimes a soothing effect is seen to follow the appli-

cation of spirit to an inflamed part. But how is this accomplished, if the internal exhibition of it be pernicious? Without much doubt, by the great abstraction of morbid heat caused by the rapid evaporation of the spirit from the inflamed part, and by its anodyne or stupifying influence which is ultimately exerted upon the irritated nerves, unremittingly drenched in it by its persevering application. The brain, at the same time, and the nerves not directly involved in the inflammation, receive but a slight impulse from the spirit so circumscribed in its application; the morbid impression they may receive from the medicine being more than compensated for by the diminution of local heat and irritation.

But all the anodyne effects of spirit in such cases, as well as that by which heat is abstracted, may be had from other agents. Watery infusion of opium, or the solution of the salts of morphia, or a poultice of the petals of the poppy, and as a lotion to cool the part, simple water will accomplish every good object that can be obtained from the spirit. Besides, the persevering local use of alcohol appears to enfeeble, as it might be expected to do, the vital powers of the part, while water may be applied for any length of time required by the inflammation, without an undue local exhaustion of vitality.

In a case of simple fracture of the leg of a boy, several years ago, in which common spirit diluted with water was locally employed for two or three weeks, there was in five weeks so slight a union of the fracture that a very small force broke it down. This effect seemed fairly to be attributable, chiefly

at least, to the influence of the spirit, in part over and above what resulted from the escape of heat by evaporation; especially as the limb was so covered as to prevent the sensation of cold, the fragments were kept in undisturbed contact, and the general health was pretty good. A considerable number of surgeons at the present day prefer simple water to every other lotion for the purpose of moderating excessive excitement in local inflammation.

In the treatment of *gangrene*, intoxicating drinks bear no comparison with opium or the salts of morphia, carbonate of ammonia, and sulphate of quinia.

To the morbid conditions of the *system* in *fevers*, alcohol, as a remedial agent, is far from being well adapted. It bears no comparison with the sulphate of quinia as an article suited to break up the morbid associations in intermittent and remittent fevers after suitable evacuations.

In the *apyrexia*, or remission of the paroxysm of *continued fever*, there are probably but few physicians in our country who have seen a large febrile practice during the last twenty-five years, who have not had occasion to regret its unfavorable effects. Under the stimulant practice, trains of morbid symptoms are often aggravated, new centres of irritation established, and which, if not sufficient to destroy the patient, prolong the period of the fever, and frequently cause relapses, or a lingering and interrupted convalescence. In the occasional states of depression occurring in continued fever, those internal stimulants should

be preferred, if any be used, which exhaust the nervous power less than the intoxicating articles. In this connexion may be named the carbonate of ammonia, camphor, and some of the essential oils.

In the collapse and prostration of Cholera. cholera the *spirit practice* is now very generally acknowledged to have been unfortunate. Indeed it would have been remarkable if an article which so strongly predisposes to this disease as alcoholic stimulus should have proved to be its best remedy. The evidence of the mischievous effects of spirituous drinks in cholera is too generally diffused to require its being introduced here in a formal manner. Ice, cold water, or even ice in small bits, swallowed at short intervals, may be more relied on for allaying the deadly nausea of cholera than any form of intoxicating liquor. For the purpose of restoring the strength in the debility which follows acute disease, is alcohol necessary?

If the fever or inflammation have been early treated with the proper evacuants, and the progress duly watched, and local determinations prevented or obviated, the debility which remains on the subsidence of the disease is easily removed. The patient may be greatly reduced in strength, but when free from disease, his convalescence is rapid under the most simple treatment. But when the stimulant plan has been perseveringly pursued with a view to remove the disease, or the debility subsequent to it, how often if the constitution can resist the action both of the disease and the medicines, is the patient observed to linger for weeks, and perhaps months, before his health is re-esta-

blished ; and how often is he subjected to some new form of disease, either subacute or chronic, or perhaps both in succession ; a cough, or difficult breathing from bronchial or thoracic irritation or effusion, an enfeebled and irregular action of the alimentive organs, a swollen limb, &c. In illustration of these remarks, the following sketches of actual cases are given, the facts of which may be fully relied on.

Dr. R., æt. twenty-five, possessing a good constitution, had, in February 1806, a severe typhus
Cases. fever which showed symptoms of crisis on the twentieth day. He took, early in the disease, purgative doses containing calomel, and afterwards small doses at short intervals of the same article, which in ten or twelve days occasioned a slight soreness of the mouth ; soon after this, aphthæ being observed in the throat, bark and wine were prescribed. The bark however was soon omitted on account of the great distress it seemed to have occasioned at the pit of the stomach, but the wine was continued. In three or four days after the symptoms of crisis were observed, a cough arose which was very troublesome for about a week, but as it subsided a swelling attended with pain and heat seized the whole left lower limb. In six weeks from the attack of the fever the patient began by the aid of a staff to hobble out of his chamber. The swelling of the limb, however, although bandaging was employed for several weeks, was never wholly removed ; and from that day to the present, upwards of twenty-seven years, the leg has exhibited a varicose state of its superficial veins, and the whole

limb including the foot has been larger and less vigorous than the other, proving that its organization was permanently affected. Before the fever, and until after the crisis, this limb was, in the estimation of the patient, as sound in every respect as the other. If in this case the processes of nature had not been interfered with by an unnatural excitation of the nerves and bloodvessels, is it probable that any form of local disease would have shown itself simply as the effect of the fever? One result, rather inconvenient to the patient as he has often remarked, of the use of wine during his convalescence was the acquisition of a strong relish for that beverage which he had never before felt, and which at various periods since it has required some effort properly to control.

'Mr. F., æt. eighteen, tall, and of fair complexion, having I believe always enjoyed good health, was attacked with continued fever in autumn. He was bled repeatedly, and took purgatives and antimonials. At the end of the second week it was thought that he would bear tonics. Mild articles were resorted to, and continued about a week. The symptoms remaining nearly the same, sulphate of quinia and wine were prescribed. In a few days he had cough and difficult breathing, with symptoms of effusion in the chest. Auscultation readily detected a fluid in the right cavity. Blisters and diuretics with active cathartics were now employed. He was soon relieved, and in about a week his symptoms were very much as when he began to take the wine and quinia, excepting that the debility was greater. Wine and the sulphate of quinia were again given, and

soon the same train of symptoms appeared as before, with an effusion of fluid in the left cavity of the chest. Under the use of diuretics and blisters, these symptoms were removed.

A third time the wine and quinia were resorted to, and the result was a swelling of one of the lower limbs with heat and pain, resembling somewhat the appearances in phlegmasia dolens. All tonics and stimulants were now laid aside, and at a time when he was unable to turn himself in bed. A mild diet was now prescribed, together with ablutions and frictions; and he very gradually and uniformly recovered, so as to have acquired a tolerable degree of health in about four months.

In the course of the treatment, valerian, carbonate of soda, carbonate of ammonia, camphor, serpentaria, and sulphuric acid, were employed. We varied the combination of the medicines a great many times; a measure which seemed to be rendered necessary by the sickness at stomach which invariably followed each combination in a day or two. At the time when he rejected stimulants, and in fact all medicines, he could retain articles of food.

Mr. H., æt. twenty-five, of a fine constitution, had remittent fever. In one full day of his sickness, that is in twenty-four hours, he took three pints of brandy, and in addition, a small pill of opium every two hours, besides a small dose of sulphate of quinia at the same interval through the night. Spirit was taken freely for several days, although the quantity, as well as that of the opium and quinia, cannot be vouched for. Two years after this sickness the patient had not re-

covered his health, but was still feeble, with impaired digestion, and swollen limbs.

There is probably no case in which pure wine would not answer as good a purpose as ardent spirit; especially if the acidity of stomach rarely attending its use should be corrected by some alkaline article; and there is one ground of preference due to wine, if the use of any sort of intoxicating liquor be insisted upon, namely, that it is probably rather less liable to establish the habit of intemperate drinking than distilled spirit.

But there are agents of higher importance than alcohol or fermented liquors, which may safely be employed to sustain the sinking powers in fevers, and to restore the lost strength after they have subsided.

Of these, the first to be named is *Air a tonic.*
pure air. 'I believe,' says Mr. James in his valuable work on inflammation, 'there is no poison more injurious than foul air—no restorative more effectual than pure air; and it runs no risk of disordering the digestive organs, as bark often does, or stimulating the vessels too much, like wine.' The restorative powers of the blood depend on its purity, and the purity of this fluid cannot be secured without pure air; hence the absolute necessity of the most strict and persevering attention to ventilation and cleanliness.

Another agent is *water.* This is the *Water.*
 proper beverage when a beverage is needed. Nothing is so grateful in the thirst of fever, and nothing so good; and its febrifuge, as well as tonic or invigorating power, judiciously applied to the surface of
Applied to the surface of the body.

the body is most striking. Either pure, or impregnated with soap, or saline substances, it may be used by way of affusion, ablution, or sponging, at a temperature warm, cool, or cold, according to circumstances. The successful use of cold water by Dr. Currie applied to the body in fevers is well known.

Dr. R. Jackson's remarks. Dr. Robert Jackson, speaking of the fevers of Jamaica, says, that 'after obviating particular symptoms of a fatal tendency, it was the principal indication to support the general powers of life, or to excite the tone and vigor of the system.' For this purpose he mentions 'cold bathing' as 'the most important remedy in the cure of the fevers of the West Indies.' For the purpose of removing the prostration and languor accompanying a form of fever prone to attack foreigners arriving in hot climates, he observes, that 'the principal trust was placed in warm and cold bathing, which under proper management seldom failed of answering every expectation completely, or of speedily removing the chief symptoms of danger.' This gentleman was in the habit of frequently impregnating the water strongly with common salt.

Often have I witnessed in fits of distressing prostration, joined sometimes with great irritability of the nerves, both during and after the subsidence of the severity of acute disease, a far more refreshing and invigorating effect from sponging the head,* body, and limbs with simple water, or weak warm soap-suds, followed by gentle friction, than from any doses of spirit, wine,

* The hair having been previously sheared off.

or porter, I have ever seen administered. It is a striking remark of the celebrated Hoffman, that if there be in nature a universal remedy, that remedy is water.'

Among the means of restoring the strength, one of great value is exercise, especially in the open air. Indeed there seems to be no adequate substitute for this remedy. Who has not felt its invigorating effects? Dr. Jackson, already quoted, observed the most happy effects in the restoration of the bodily powers reduced by yellow fever, from his patients when too weak to raise their heads, being carried out daily in carts or wagons. Passive exercise in the sick chamber, or the removal from it to an adjoining room on a truckle-bed or chair, may be made very useful to the sick patient, when his strength is too much reduced to admit of his being carried abroad.

In addition to the common articles of plain, unstimulating food, may be mentioned as an important restorative agent, fresh, ripe fruit. This, especially if acidulo-saccharine and juicy, often presents to the stomach precisely the stimulus it craves, and may be borne when spirit and wine cannot be taken without disturbing the circulation. The man who shall invent a cheap and easy method of preserving without decay the well ripened, juicy, and pulpy fruits, will be entitled to the thanks of succeeding generations. Could the grape, instead of being manufactured into wine, be carried fresh and distributed freely in distant countries, in place of the intoxicating liquor with which it now supplies them, an unspeakable

amount of health and comfort would result to the human family.

With prescribed attention to ventilation, cleanliness, ablutions, and frictions, plain, nourishing food, including often fresh fruits, joined with early and persevering exercise, I have known patients to recover with a rapidity greater than I remember to have observed from any use whatever of intoxicating drinks and narcotics.

Under a more perfect acquaintance with the functions of life, and with the influences exerted upon it by remedial agents, may it not be hoped that the period will arrive when not only ardent spirit, but all intoxicating liquors, will be regarded as not absolutely necessary in the practice of physic or surgery? It may perhaps be worth remarking, that throughout the wide-spread king-

Alcohol never the effect of vegetable or animal secretion. doms of animal and vegetable nature, not a particle of alcohol in any form or combination whatever has been found as the effect of a single living process, but that it arises only out of the decay, the dissolution, and the wreck of organized matter, or of its ever varied and wonderful productions; and is it probable that the beneficent author of such a countless multitude of medicinal agents as exist in the products of vital action, would have left, to be generated among the results of destructive chemistry, an article essential to the successful treatment even of a single disease?

Objects of the medical profession.

The profession of medicine has an extensive scope. It looks into the structure of animal machinery, it investigates the laws of its vital movements, both

in health and disease, and contemplates a variety of influences by which its complicated processes are accelerated, retarded, suspended, or destroyed. It learns, that to the functions of life belongs a standard rate of action, beyond which they cannot be safely excited or driven; that alcoholic and narcotic stimulants derange and confuse the healthy movements, exhaust the vital power more than nature intended, and induce premature decay, and dissolution. This profession claims the strictest alliance with the cause of humanity; it cherishes good will, and proffers substantial blessings to men. It extends its hand not only to the exhausted, bed-ridden patient, and to the tottering and dejected invalid, but even to the healthy man, to save him from the pain and suffering which ignorance, or custom, or recklessness might bring upon him.

Let physicians then be true to their profession. Let them study the duties they owe to the communities with whom they live and labor. Let them teach the means of preserving health, as well as of combating disease; let them show, as it is in their power to do, that the taking of medicine in health in order to prevent disease is most absurd and mischievous; that the surest guarantee of health is a correct regimen, and that the best treatment of acute disease is often very simple.

Let them explain, as far as practicable to those around them, the mechanism of their physical organization, and when it can be done, 'knife in hand,' the work will be easy. Let them expound, so far as known, the beautiful and harmonious laws enstamped upon this organization, by which

its complicated movements and diversified phenomena are sustained; laws as immutable in their nature, and inflexible in their operation, as those that hold the planetary system together; and like them originating in the same incomprehensible and mighty mind, which, acting in the strength of its own philanthropy and unchangeableness, gave to man a moral code from amidst the smoke and thunders of Sinai. No law coming from this high source can be violated with impunity; and he who infringes a law of the vital economy, receives, in an injury done to the machinery of life, the penalty of his transgression with no less certainty than he who leaps from a tower heedless of gravitation. With all its given power of accommodation to circumstances, no possible training or education of this machinery can change the nature of its primitive adaptations, and make an article congenial and healthful, which was originally repulsive and noxious. No human ingenuity or perseverance can render impure air as wholesome as that which is pure, or any form of intoxicating liquor as healthful as water.

So long as alcohol retains a place among sick patients, so long there will be drunkards; and who would undertake to estimate the amount of responsibility assumed by that physician who prescribes to the enfeebled, dyspeptic patient the daily internal use of spirit, while at the same time he knows that this simple prescription may ultimately ruin his health, make him a vagabond, shorten his life, and cut him off from the hope of heaven. Time was when it was used only as a medicine, and who will dare to offer a guaranty

that it shall not again overspread the world with disease and death ?

Ardent spirit—already under sentence of public condemnation, and with the prospect of undergoing an entire exclusion from the social circle, and the domestic fire-side—still lingers in the sick chamber, the companion and pretended friend of its suffering inmates. It rests with medical men to say how long this unalterable, unrelenting foe of the human race shall remain secure in this sacred, but usurped retreat. They have the power, and theirs is the duty to perform the mighty exorcism. Let the united effort soon be made, and the fiend be thrust forth from this strong but unnatural alliance and companionship with men, and cast into that ‘outer darkness’ which lies beyond the precincts of human suffering and human enjoyment.

ANDOVER, Nov. 9, 1836.

MY DEAR SIR—It appears to me, that could your Prize Essay be published alone and in a cheap form, adapted to universal circulation, in this and other countries, it would do unspeakable good. And whoever shall be instrumental in putting a copy of it into every family, will be eminently the benefactor of mankind. Hoping that Providence will open the way for the accomplishment of this object,

I am, with great respect and esteem, truly yours,
J. EDWARDS, Pres. Theo. Seminary.

BOSTON, Nov. 24, 1836.

MY DEAR SIR—When your Prize Essay was first published, I read it with pleasure and profit. I have had occasion to consult it more than once. I have referred to it and quoted it, in speeches and publications repeatedly, and I regret that it is not before the public in a cheaper form. It is precisely the work to form a part of those little parcels, which we are called on, almost daily, to distribute. In making up our gratuitous packages for various quarters, your work should go with them; it may be called the medical chest for a temperance voyage. This, however, is inconvenient in its present form; and if it can be published in a much cheaper form, pamphlet of course, I have no doubt that its circulation extensively would subserve the interests of the temperance cause.

Very truly and respectfully yours,
Professor MUSSEY. L. M. SARGENT.

I entirely concur in the above opinion.

JOHN TAPPAN.

TRENTON January 6, 1837.

Dr. THOMAS SEWALL:

DEAR SIR—Most cheerfully do I unite with many devoted friends of the cause of temperance, in recommending the republication of Dr. Mussey's Prize Essay. Dr. M.'s writings on the subject of temperance are excellent, and I should rejoice to see them scattered thickly over the whole length and breadth of our land.

With great respect, yours, GABRIEL SMITH.